

San Francisco Bay Conservation and Development Commission

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TO: Bay Fill Policies Working Group Members

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SUBJECT: Bay Fill Working Group Suggested Fill Issues for Built Environment Projects

A. Working Group Charge. Bay Fill Working Group Chair, Barry Nelson directed staff to prepare an inventory of key issues for built environment projects regarding climate change adaptation and Bay fill for its July meeting. Staff reviewed the Bay Fill meeting summaries; the Commission Sea Level Rise Workshop recommendations; the San Francisco Bay Plan (Bay Plan); and met with a subset of regulatory and planning staff members to develop the following inventory of issues. However, because the Bay Fill Working Group has not yet thoroughly examined the issues faced by built environment, this list is less developed than the information provided on the habitat based projects. This document was previously provided to the Working Group, but additional considerations have been added. The new language is underlined.

B. Inventory of Key Issues Related to Climate Change Adaption, Bay Fill and Bay Plan Policies addressing the Built Environment.

1. Fill in the Shoreline Band - Analyzing and regulation of fill in the shoreline band is limited to the nexus of maximum feasible public access so it is difficult to address SLR adaptability and resiliency for shoreline development beyond the public access requirements. (Treasure Island).
2. Maximum Feasible Public Access over Time. How does the Commission assure that currently authorized or new authorized public access is adaptable to sea level rise, or does not become a barrier to tidal exchange in areas where it is desirable.
3. Flood Protection - How should flood protection projects adapt to SLR over time? The current response is simply building higher levees, which technically meets the Commission's SLR requirements, but are not particularly adaptive. (Foster City) In some locations there is an opportunity to expand flood plains laterally as well? (San Francisquito Creek) Limited jurisdiction reduces ability of the Commission to address these issues. What does the Commission see as its role in determining flood protection methods in the Bay Area?

There is a significant mismatch between who owns the shoreline and the role of flood managers- the majority of the shoreline is not managed by the agencies responsible for

flood protection. It is owned by railroads, park districts, private landowners, ports, wildlife refuges, Caltrans, etc. and many landowners are protected by land they don't own or manage and have no control over.

4. Adjacent Existing Low Lying Areas – The island effect. Building up shoreline elevations at project site may reduce impacts from sea level rise, but the adjacent low lying areas may limit access over time to the project site, or worse be flooded as a result of lack of elevation and/or protection. How does the Commission address areas outside of the project boundaries that would be inundated overtime and prevent the use of the project? (Blue Harbor)

Even if an asset such as a refinery or a seaport is protected or not at risk, the services and utilities that it relies on often are at risk (roadways, power, water, stormwater, etc.).

5. Shoreline Protection – The Commission has limited ability to address regional shoreline protection. Currently, analysis is completed on a project by project basis, and it is difficult to assess impacts to adjacent property or require measures that are protective of adjacent property. This project by project approach is a kin to haphazard filling, but rather haphazard shoreline protection, with potential to mismatch shoreline protections between projects with greater means. How might the Commission ensure that current proposals are adaptable to future regional approaches to shoreline protection?

As water rises there may be more need for breakwaters adjacent to shorelines to reduce wave energy directed at the shoreline. This presents a challenge of balancing the height of the protection with the uses behind it- particularly if in conflict, such as in the case of the airports which need planes to take off and land. As protective structures gain elevation, they need to be wider and increasing the amount of associated fill.

6. Green to Gray Infrastructure – Should the Commission require SLR adaptation measures with the same approach as “avoid, minimize and mitigate” but with a SLR approach of: “don’t place in harms way, retreat, adapt structures, green infrastructure, gray/green and gray” process of evaluating options?
7. Barriers – It is likely that in the near future the Commission will see proposals to place tide gates and other barriers at or near the mouths of tidal creeks to limit Bay waters from traveling inland or limiting riverine flow during high tide. Tide gates could create energy while water is held back from areas that would be inundated. Over the long term, the Commission may see proposals to place larger barriers at the Golden Gate, Carquinez Strait and other locations that may limit flows between embayments. These areas are highly productive ecological zones, areas where nutrients and sediment enters and leaves the Bay, and would likely require significant engineering and fill. How should the Commission consider and prepare for such proposals on the small to large scale and in the short term and longer term?
8. Transportation Corridors and Flood Protection – Several of the Bay Areas large freeways (railways and trails as well) are located adjacent to the Bay, and are often the only physical barrier to tidal action. Can these transportation corridors serve the dual purpose of flood protection and highways? Should they be adaptable to sea level rise through use

of causeways, elevated sections or other means. If it is raised to protect the structure, does that reduce the flood protection for the areas behind it? If so, how should the area behind it be protected?

When in areas of marsh habitat, should they allow tidal flow to areas below and behind the roadway? How would the Commission work with CalTrans, the USACE and the Flood Protection Agencies to align these purposes, and where is it appropriate?